

# Patient Education Strategies in Dermatology

## Part 1: Benefits and Challenges

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### ABSTRACT

Patient education is an important aspect of patient care in dermatology. Successful education increases patient satisfaction and results in improved outcomes and adherence. This article discusses the role of patient education in dermatology. Specifically, Part I of the review examines evidence demonstrating the benefits of patient education and recognizes the challenges that limit effective patient education. These challenges can be summarized as barriers to understanding, poor patient recall, conflicting information, and barriers to physician delivery. Further descriptions and an assessment of these limitations along with methods to combat them are included in the review.

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At a time when physicians are pressed for time and patients are encouraged to be autonomous in healthcare settings, patient education is of utmost importance. Dermatological conditions, specifically, have several characteristics that may make them particularly responsive to patient education. Diseases such as allergic contact dermatitis can essentially be cured by successfully educating patients on allergen avoidance. Similarly, atopic dermatitis can be more effectively controlled if patients understand the disease mechanism, trigger avoidance, and proper skin care. Finally, most conditions in dermatology have the advantage of patients directly observing the effects of effective or ineffective management, creating the potential for a powerful feedback loop to reinforce behavior. Therefore, ensuring effective patient education and subsequent behavior modifications so that patients may self manage disease becomes extremely important in the field of dermatology. The objective of this review is to evaluate different strategies of patient education based on existing literature in a variety of medical fields. In doing so, the authors hope to more clearly define how to best educate patients in managing chronic skin conditions.

### BENEFITS OF PATIENT EDUCATION

The role of patient education has been well studied in a variety of chronic diseases including hypertension, arthritis, and asthma.<sup>1-4</sup> In a study conducted by Hill et al,<sup>3</sup> the effect of patient education alone on adherence to rheumatoid arthritis medications was demonstrated. The

randomized, controlled trial of 100 patients with rheumatoid arthritis contained an educational group and a control group. The educational group underwent a complete program covering treatments for rheumatoid arthritis, the disease process, and the importance of physical and psychological well-being. The control group received standard care, and both groups received a typical pharmaceutical leaflet for the medication being studied. Adherence was evaluated based on a pharmacological marker and was significantly increased in the educational group compared to the control group.<sup>3</sup> Patient education has also been found to be beneficial in more acute complaints. In a study evaluating anticipatory guidance and education about ear pain, parents of 15-month-old children received standardized education, including PowerPoint slides, on identifying and safely relieving ear pain and on recognizing more serious causes of ear pain. As a result, emergency department visits for ear pain in the patients declined significantly compared with patients at other local sites and patients the year before.<sup>5</sup> Similar results, including decreased medication errors and less unnecessary physician contact, have also been found with an educational intervention for the management of fever.<sup>6</sup>

Asthma education has traditionally been centered upon trigger avoidance and self-management of early symptoms. The National Heart Lung and Blood Institute (NHLBI) encourages providers to incorporate education into standard care and not only stresses an increase in knowledge, but also behavior modification.<sup>2</sup> The

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fundamental concepts of asthma education also apply to management of dermatological diseases, such as atopic dermatitis and allergic contact dermatitis. Therefore, it can be proposed that the outcomes of well-studied asthma education may parallel educating patients in the field of dermatology as well. In a randomized, controlled trial by Schaffer and Tian,<sup>7</sup> pharmacy-verified adherence to asthma medications and general asthma knowledge both improved with the use of educational interventions. The study evaluated the use of an audiotape, which included certain fundamental concepts of asthma and its management that were intertwined with a storyline. They also evaluated an NHLBI asthma management booklet. Both interventions individually and together were shown to increase knowledge based on asthma pretests and post-tests and pharmacologic-verified adherence when compared with standard education for six months.<sup>7</sup>

While the majority of literature supports the value of patient education in effective care, not all studies have shown favorable results. In a review of randomized, controlled trials evaluating adherence to antihypertensive medications, patient education was found to have no real impact on adherence. Instead, adherence and outcomes were related more to simplification of treatment regimens and shorter duration of treatment.<sup>1</sup> However, dermatology differs in two fundamental ways: first, topical therapy is more complex and time consuming than oral therapy, and second, results of nonadherence with treatment regimens are more likely to produce immediate bothersome symptoms, such as a worse appearance, itch, or pain. Perhaps the lack of effect from patient education in conditions such as hypertension comes more from a lack of understanding the value of treatment, as the benefits of treatment are often not apparent in terms of a reduction in symptoms. It has been well documented that a lack of understanding the disease or the importance of treatment makes patients less likely to adhere.<sup>2,8-10</sup>

Specifically, in dermatology, the impact of patient education in managing pediatric eczema was evaluated by Grillo et al.<sup>11</sup> A longitudinal, randomized, controlled trial was performed using an intensive education program covering the basics of eczema, triggers, skin care, use of corticosteroids, and other important aspects of management. In addition, the program included hands-on sessions for wet wrapping and applying creams. The control group and educational group were otherwise treated identically and no alterations were made to their treatment regimens. After 12 weeks, the individuals participating in the educational course demonstrated significant improvements in their atopic dermatitis scores based on the Scoring Atopic Dermatitis (SCORAD) rating.<sup>11</sup> Similarly, in a separate review of the management of atopic dermatitis, Krakowski et al<sup>12</sup> defined important educational objectives to be trigger avoidance, skin care, and treatment. They highlighted the importance of assessing the perspectives of parents and patients to develop a baseline for education, evaluate motivation, and ensure full understanding of the treatment necessity.<sup>12</sup> It

has been found that around one-third of patients use topical corticosteroids less than prescribed because of safety concerns.<sup>13</sup> A randomized, controlled trial in Germany also demonstrated that parents of patients with atopic dermatitis who had been enrolled in an age-appropriate, six-week, educational intervention showed improvements in subjective severity, atopic dermatitis scoring, and quality of life.<sup>14</sup> While these trials have been conducted with pediatric patients, the education and management applied to the parents of pediatric patients. Therefore, in general, the same concepts can be applied to parents in managing their own care.

Empowering patients with confidence through sufficient education and understanding enables them to more effectively self manage their diseases. However, patients are gathering information from a wide variety of sources including verbal advice from friends, information from physicians, written materials, videotapes, audiotapes, online programs and websites, and organized self-management programs. With the overwhelming number of sources, it becomes part of the physician's job to ensure that patients are consulting proper sources and being effectively educated.

## CHALLENGES TO PATIENT EDUCATION

In order to sufficiently educate patients, it is important to keep in mind several barriers that impede the process. While the active transference of information from physician to patient has its own challenges, there are more subtle factors that may affect long-term retention of information. Successful education is a product of the content of the information and the mechanism of delivery of that information.

**Barriers to understanding.** The most obvious challenges are barriers to patients understanding the information being presented. Estimations show that about 20 percent of the United States population reads below the eighth-grade level.<sup>10</sup> As a result, most sources recommend that reading material for patients be below the eighth-grade reading level. It may be even more effective to keep reading levels around the fifth- or sixth-grade level.<sup>15,16</sup> Despite the reading level, when giving patients reading materials, one must always keep in mind that literacy is a definite barrier. In studying patient education in rheumatoid arthritis, diagrams using key words and images meant to guide logic and understanding without the use of excessive words and sentences were studied. Unfortunately, these diagrams were no more successful in educating illiterate patients than were standard booklets. This suggests that it may be necessary to rely on one-on-one education using spoken, audio, video, or computer-assisted strategies in illiterate patients.<sup>17</sup>

Patients with varying cultural backgrounds may have alternative understandings of their diseases and, therefore, may be less receptive to standard education. To combat this, physicians need to recognize cultural barriers and communicate the importance and logic behind each step of a treatment regimen.<sup>9</sup> Patients are generally self-directed,

so they are more likely to persist with treatment if they understand the reasoning.<sup>8</sup> Educating elderly patients is also a challenge for physicians. Cognitive decline and hearing and vision impairments among elderly patients can present as barriers to traditional education strategies, and oftentimes these patients' lengthy medication lists and histories complicate the addition of new treatments.<sup>8,9</sup>

**Poor patient recall.** A visit to the dermatologist is oftentimes a short amount of time to communicate a large volume of important information. Therefore, the ability to recall information becomes an essential component of effective education. Ley, an English psychologist, thoroughly studied factors affecting recall and devised several methods for improvements. Ley asserted that notable information should be presented early on in conversation and should be organized into specific categories.<sup>18,19</sup> Organization is especially important in the elderly since organization and recall are negatively affected as a person ages.<sup>20</sup> Short words and simple sentences also contribute to greater recall, and supplementation of conversations with written information has been theorized to increase recall. Clear directions indicating exactly what the patient needs to do are helpful in promoting adherence, and in complicated regimens, prioritizing the actions to be taken is important.<sup>18,19</sup> In his study of discharge instructions, Isaacman<sup>21</sup> also demonstrated the importance of standardized instructions. Verbally or written, they were shown to increase recall in patients.<sup>21</sup> Repetition by the physician and by the patient also have beneficial effects on recall.<sup>19</sup>

The actual material being presented may also affect recall of information. Jansen et al<sup>22</sup> conducted a study measuring recall in 260 patients seeing an oncologist for the first time following a new diagnosis of cancer. They found that too much discussion concerning prognosis, whether favorable or unfavorable, contributed to lower recall in all ages. No effects of diagnostic or treatment discussions were found on recall. Overall, this study found that 49.5 percent of information in patients under 65 and 48.4 percent in patients over 65 was retained 10 days post-consultation based on follow-up telephone interviews. In accordance with previous studies, this indicates that a significant amount of information is not recalled by patients.<sup>22</sup>

One of the more ambiguous factors affecting recall is the amount of information presented. Psychology research has postulated that there exists a finite amount of information that the human brain can process at one time. Information overload refers to the confusion and uncertainty that may result when excessive information is presented to a person.<sup>23</sup> It is a vague line that may itself be the result of numerous factors. Schommer et al<sup>24</sup> studied information overload in the processing of prescription drug information. They evaluated the effects of the number of topics presented, depth of topics, and written supplements on perceived cognitive effort, information overload, and patients' evaluations of the usefulness of the information. They measured information overload subjectively based on the emotional responses that patients had to the

information. While the study was theoretically based and did not actually measure outcomes, it did establish clear relationships between the presentation and processing of information. As would be expected, there was an increase in cognitive effort with increasing amount of information presented. Ultimately, a U-shaped relationship was found between cognitive effort and information overload. An inadequate amount of information resulted in low cognitive effort and poor evaluations of the information. Conversely, excessive information and high cognitive efforts produced confusion and frustration interpreted to represent information overload. The addition of written information had no effects on minimizing or worsening information overload.<sup>24</sup> While this study only examined the effects of the amount of information and written supplements on information overload, it is likely that information overload may be modified by additional factors. Jansen et al<sup>22</sup> found that an overload of information negatively affected recall in cancer patients over 65 more so than in cancer patients under 65, indicating age as a potential predictor for information overload. Additionally, it has been suggested that information overload may be more significant when time constraints exist.<sup>24</sup>

Specific to dermatology, the concept of information overload was suggested in a study by Scalf et al<sup>25</sup> of patient satisfaction following patch testing for allergic contact dermatitis. Patch testing involves a large volume of information and education, making the patients subject to information overload. The study found that patients forgot more than 40 percent of allergens for which they tested positive, and patients testing positive to one or two allergens were significantly more likely to recall the specific allergens than those testing positive for three or more allergens.<sup>25</sup> Again, these findings demonstrate the negative effects excess information may have on recall. In general, patients typically prefer more information. Information solves ambiguity and uncertainty. Higher patient satisfaction results when physicians present more information during a consultation. However, once patients are out of the physician's office, the processing and practical utilization of the information presented become struggles. The consequences of information overload, therefore, may occur long after the physician encounter and may not always be apparent to the physician. Because of this, it is important to follow up with patients to ensure appropriate recall and understanding of information.<sup>24</sup>

**Conflicting information.** Patients today consult a variety of sources for health information including their physicians, friends, television, and internet. Additionally, in discussing strategies for education, many sources recommend using a variety of techniques.<sup>4</sup> However, one must keep in mind that varying sources of information can present patients with conflicting treatment suggestions and prognoses. The greater the amount of information given to the patient theoretically increases the risk for conflicting information. A lack of consistency in information may negate the positive effects of reinforcement and repetition and instead lead to poor

adherence.<sup>9</sup> It is always essential to assess the patient's understanding of his/her diagnosis, treatment, and prognosis.<sup>8</sup> Ultimately, an additional responsibility of the physician when it comes to education is knowing exactly what information the patients are using.

**Barriers to physician delivery.** Perhaps the most difficult challenges to address when it comes to patient education are those that prevent physician delivery of the information. Time is the most obvious. In the fast-paced setting of a typical dermatology practice, allotting the time necessary to individualize patient education may not be feasible. Information overload, as mentioned previously, may also become more of a problem when there is a finite amount of time for education.<sup>24</sup> Additionally, when using written or videotaped materials that are sent home with a patient, an unavoidable obstacle is that the patients may never study the information. It is important to realize this and perhaps call attention to especially important information in the office. One final barrier to physician delivery is failing to acknowledge anxiety and its role in physician delivery of information. Both excessive anxiety and too little anxiety have been shown to decrease the effective delivery of one-on-one patient education. Too little anxiety can imply a lack of motivation, which is necessary for the physician to investigate. Conversely, high levels of anxiety are also important to recognize and address. One preventable cause of unnecessary anxiety occurs when the physician does not address the patient's main complaint and directly relate it to the diagnosis and treatment plans.<sup>4,10</sup>

In Part 2 of this review, we will discuss the strengths and weaknesses of specific patient-education strategies, including verbal, written, group, audio, video, office-based computer, and internet-based education techniques. In addition, we will give recommendations to optimize patient education.

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